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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/362,058	07/28/1999	MASANORI IWASAKI	P99.0922	6363

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EXAMINER	
LEE, RICHARD J	
ART UNIT	PAPER NUMBER
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/362,058	Applicant(s) Iwasaki
	Examiner Richard Lee	Art Unit 2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Feb 15, 2002*.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-7* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

1. The Examiner wants to point out that the applicant's arguments from the amendment filed February 15, 2002 have been noted and considered, but are deemed moot in view of the following new grounds of rejections.

2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

At claim 2, lines 12-15, the phrase "so that rays from said subject to the different portions of the image-capturing region of said single image-capturing device so that rays from said subject are reflected by the imaging-side reflection means" as claimed is vague and indefinite. The applicant is reminded to provide the required bracketing and underlinings of any change(s) to the claim(s).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekine et al of record (5,907,434) in view of Miyakawa et al of record (5,028,994).

Sekine et al discloses an image pickup apparatus as shown in Figures 1, 2, 8, and 15, and the substantially the same three dimensional image capturing apparatus as claimed in claims 1 and

5, comprising substantially the same image capturing device (i.e., 121, 122 of.Figure 8) having a plurality of image capturing regions; a plurality of optical systems (see Figure 8) for forming images of a subject in the image capturing regions, the optical systems including a plurality of reflection means (801, 802 of Figure 8) for reflecting rays from the subject a number of times, and at least a lens (111, 112 of Figure 8) provided to be closer to the image capturing device than the closest reflection means to the subject among the reflection means, wherein the reflection means and the lens are used to form, in the image capturing regions, separate images of the subject which are captured from different viewpoints having a distance therebetween; and a signal processing means (see Figure 1) for dividing a video signal from the image capturing device into video signals from the image capturing device into video signals representing the images of the subject captured in the image capturing regions for capturing images of the subject from the different viewpoints.

Sekine et al does not particularly disclose, though, a single image capturing device as claimed in claim 1. However, Miyakawa et al discloses a synchronized three dimensional imaging apparatus as shown in Figure 1 and teaches the conventional use of a single image capturing device 40 of Figure 1 for providing a plurality of image capturing regions for three dimensional display (see column 5, lines 14-33). Therefore, it would have been obvious to one of ordinary skill in the art, having the Sekine et al and Miyakawa et al references in front of him/her and the general knowledge of image capturing devices for three dimensional displays, would have had no difficulty in providing the single image capturing device of Miyakawa et al for the three

dimensional capturing and display system as shown in Figures 1 and 8 of Sekine for the same well known three-dimensional capturing purposes as claimed.

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekine et al and Miyakawa et al as applied to claims 1 and 5 in the above paragraph (4), and further in view of Ishihara of record (5,737,084).

The combination of Sekine et al and Miyakawa et al discloses substantially the same three dimensional image capturing apparatus as above, but does not particularly disclose light shielding means provided at least between the image capturing device and the reflection means so as to separate the optical systems for forming images of the subject and light limiting means provided to be closer to the subject than the reflection means for the (2n-1)-th reflection from the image capturing device along the optical systems, wherein the light limiting means prevent incidence of flux of ambient light outer from rays forming each image of the subject as claimed in claims 3 and 4. However, Ishihara discloses a three dimension shape measuring apparatus as shown in Figure 8, and teaches the conventional light shielding and light limiting means (see 17, 19 of Figures 5 and 8, column 9, lines 5-22, column 11, lines 29-56) for preventing the incidence of flux of ambient light outer from rays forming the image of the subject. Therefore, it would have been obvious to one of ordinary skill in the art, having the Sekine et al, Miyakawa et al, and Ishihara references in front of him/her and the general knowledge of three dimensional image capturings, would have had no difficulty in providing the light shielding and light limiting features of Ishihara

for the three dimensional capturing system of Sekine et al for the same well known reduction of light rays from the subject purposes as claimed.

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekine et al and Miyakawa et al as applied to claims 1 and 5 in the above paragraph (4), and further in view of Tabata et al of record (5,737,084).

The combination of Sekine et al and Miyakawa et al discloses substantially the same three dimensional image capturing apparatus as above, further including a timing generator for driving the three dimensional image capturing apparatus so as to output the images formed in the image capturing regions in the form of a single video signal and a driver (see 1504 of Figure 15 and column 9, lines 63-67 of Sekine et al); and a camera signal processor for implementing camera signal processing on the single video signal (see Figure 1 of Sekine et al).

The combination of Sekine et al and Miyakawa et al does not particularly disclose, though, the followings:

(a) wherein parallax which is the distance between the viewpoints is one centimeter or greater as claimed in claimed 6; and

(b) a signal recorder for recording on a signal recording medium the processed video signal output from the camera signal processor; a single reproducer for reproducing the video signal recorded on the recording medium; a video separating circuit for separating the reproduced video signal from the reproducer into signals corresponding to the image capturing regions; and

display apparatuses for displaying the signals corresponding to the image capturing regions, which are output from the video separating circuit as claimed in claim 7.

Regarding (a) and (b), Tabata et al discloses an image display apparatus with recording and reproduction capabilities as shown in Figures 2, 13, 16, 17, 19, 21, and 22, and teaches the conventional parallax from stereoscopic imagings (see column 6, lines 25-30, column 20, lines 8-14, and Figures 13A and 13B), which obviously could be one centimeter or greater as claimed. In addition, Tabata et al teaches substantially the same recording means, reproducing means, video separating circuit, and display apparatuses (see Figures 17, 19, 21, and 22). Therefore, it would have been obvious to one of ordinary skill in the art, having the Sekine et al, Miyakawa et al, and Tabata et al references in front of him/her and the general knowledge of the recording, reproducing, and display of three dimensional images, would have had no difficulty in providing the recording and reproducing of videos, video separating, and display apparatuses as taught by Tabata et al for the three dimensional imaging system of Sekine et al as well as recognizing the images of the subject of Sekine et al results in a parallax effect in view of the parallax teachings of Tabata et al for the same well known three dimensional image capturing purposes as claimed.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sekine et al and Miyakawa et al as applied to claims 1 and 5 in the above paragraph (4), and further in view of Ishihara (5,737,084) and Tabata et al (6,177,952).

The combination of Sekine et al and Miyakawa et al discloses substantially the same three dimensional image capturing apparatus as above, further including a plurality of imaging side

reflection means (118, 119 of Figure 8) having reflectors provided to the obliquely outward for a plurality of different portions of an image capturing region of the image capturing device; a plurality of subject side reflection means (801, 802 of Figure 8) having reflectors provided, for the imaging side reflection means, outer from the imaging side reflection means so as to be oblique with respect to a subject, the subject side reflection means reflecting rays from the subject to the corresponding imaging side reflection means; a plurality of lenses or lens units (see 116, 117 of Figure 8) provided to be closer to the single image capturing device (i.e., as provided by Miyakawa et al) than the subject side reflection means in optical paths formed from the subject to the different portions of the image capturing region of the single image capturing device so that rays are further reflected by the imaging side reflection means, the lenses or lens units forming a plurality of images of the subject.

The combination of Sekine et al and Miyakawa et al does not particularly disclose, though, forming a plurality of images of the subject which have parallax and a plurality of diaphragms in which when each optical path has a lens, the diaphragms are provided to be closer to the subject than the lens and in which when each optical path has a lens unit, the diaphragms are provided to be closer to the subject than a lens of the lens unit as claimed in claim 2. However, Ishihara teaches the conventional use of diaphragms within the optical path of an imaging sensor (see 12 of Figure 8) and Tabata et al teaches the general stereoscopic imagings involving parallax caused by the images (see column 6, lines 25-30, column 20, lines 8-14, and Figures 13A and 13B). Therefore, it would have been obvious to one of ordinary skill in the art, having the Sekine et al,

Miyakawa et al, Ishihara, and Tabata et al references in front of him/her and the general knowledge of three dimensional imagings, would have had no difficulty in providing the diaphragm imaging optics as taught by Ishihara for the three dimensional imaging system of Sekine et al and Miyakawa et al as well recognizing that the images of the subject of Sekine et al and Miyakawa et al results in a parallax effect in view of the parallax teachings of Tabata et al for the same well known three dimensional image capturing purposes as claimed.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. **Any response to this final action should be mailed to:**

Box AF

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for formal communications; please mark "EXPEDITED PROCEDURE")

Or:

(703) - (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (703) 308-6612. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group customer service whose telephone number is (703) 306-0377.

RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

5/10/02